



## DETAIL AT UPSTREAM/DOWNSTREAM EDGE OF EMBANKMENT

SCALE:  $\frac{1}{4}" = 1'-0"$

### NOTES:

1. The details presented here should be reviewed and modified to suit site specific details.
2. Two different toe treatments are shown on Dwg. No. 2.4.1. The Designer shall select the most appropriate for the site and show this one on the plans.
3. The riprap detail with toe above the channel bed reduces the quantity of required channel excavation. However, the Engineer needs to evaluate the following drawbacks of this detail:
  - a. The embankment needs to be founded on firm granular material.
  - b. The reduction of the channel cross section needs to be evaluated.
  - c. Since the riprap stone is raised above the channel bed, the stone is subject to a higher water velocity than when level with the top of the channel bed.



LRFD BRIDGE  
MANUAL, PART II

## RIPRAP EMBANKMENT EDGE

EMBANKMENT PROTECTION

DATE OF ISSUE  
JUNE 2013

DRAWING NUMBER

**2.4.2**